USDA - FOREST SERVICE
Edited JBruggink 8/24/06

FS-2500-8 (6/06)

Date of Report: August 23st, 2006

BURNED-AREA REPORT

(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report:

[X] 1. Funding … request for Emergency Stabilization Funds

[ ] 2. Accomplishment Report

[ ] 3. No Treatment Recommendation

B. Type of Action:

[ ] 1. Initial Request (best estimate of funds needed to complete eligible stabilization measures)

[X] 2. Interim Report # _1__

[ ] Updating the initial funding request based on more accurate site data or design analysis

[ ] Status of accomplishments to date

[ ] 3. Final Report (following completion of work)

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Magpie

B. Fire Number: UT-FIF-000413 (Wildland Fire)

C. State: Utah

D. County: Millard

E. Region: Intermountain - 04

F. Forest: Fishlake National Forest

G. District: Fillmore - D1

H. Fire Incident Job Code: P4C3B1

I. Date Fire Started: 08-08-2006 @ 1900

J. Date Fire Contained: 08-14-2006 @ 2000

K. Suppression Cost: $ 300,000 … Type III – Final Incident Summary / 08-14-2006 (Estimated Final Cost)

L. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline waterbarred (miles) ~ ½ to ¾ of a mile of hand line was rehabilitated (SW part of the burn)

2. Fireline seeded (miles) To my understanding, none of the hand line was re-seeded – instead, it was thought the seed source existing within the topsoil would be adequate to complete the job; it should be noted, some areas were simply too cobby or too stony to really consider seeding as an option

3. Other (identify) Light rehabilitation was completed on the Helispot (Northern peak near the burn)

M. Watershed Numbers: 160300051401 / North Fork of Chalk Creek – 6th Field HUC

N. Total Acres Burned: 711

(Summary of Acres Burned by Land Ownership)

711	**NFS Lands**	-0-	**Other Federal**	-0-	**State of Utah**	-0-	**Private**

O. Vegetation Types: Pinyon–Juniper, Gambel oak, curlleaf mountain-mahogany and mountain big sagebrush along with perennial grasses occurred along moderately steep mountainsides and steep ridgetop areas (57 %); Gambel oak with perennial grasses was observed on the deeper soils located at higher elevations within the burn (38 %); a small, but distinct, riparian zone was mapped along the North Fork of Chalk Creek (3 %) and a small patch of mixed conifers consisting of white fir and Douglas fir were visible on a NW facing slope located ½ mile SE of Black Cedar Hills Spring (2 %).

P. Dominant Soils: The mixed conifer site had Mollic Haplocryalfs, Typic Haplocryalfs and Lithic Haplocryalfs as the primary soil types; the areas supporting curlleaf mountain-mahogany were mapped as Lithic Haplustolls and Lithic Argiustolls; the Gambel oak sites located on the deeper mountainsides were identified as Pachic Argiustolls, Pachic Haplustolls and Typic Argiustolls; the mountain big sagebrush meadows were documented as Typic Haplustolls; the PJ dominated lands at lower elevations were mapped as Aridic Argiustolls and Aridic Haplustolls and the remaining riparian soils were Cumulic Haplustolls and Torrifluventic Haplustolls..

Q. Geologic Types: The lower toeslopes of the burned-area had wildland soils formed in colluvium and residuum from the noncalcareous, Nugget Sandstone Formation; the remaining backslopes, shoulderslopes and ridgetop areas had soils derived from hard deposits of Tintic Quartzite; the term quartzite is commonly used to label metamorphosed sandstone rocks. The riparian soils mapped along the North Fork of Chalk Creek were formed in mixed sediments of various sedimentary rocks.

R. Miles of Stream Channels by Order or Class:

Stream Names	Zero Order	1st Order	2nd Order	3rd Order
Includes two un-named 1st Order tributaries – and, the North Fork of Chalk Creek	-0-	1.25	-0-	2.5

S. Existing Transportation Systems (2)

Trails: One large segment of unauthorized trail exists right in the center of the burned-area; this unimproved trail surface follows along the contour of the landscape; some of the trail was affected by a severe burning disturbance; much of the trail is covered with stones and boulders; as expected, there are no culverts in the channels – travel is hazardous; the area should be signed, closed-off and obliterated to protect the public. A second ATV trail occurs along the north and western perimeter of the burn. Most of this trail is in good condition … a few areas of trail should be re-conditioned in order to prevent a loss-of-water-control associated with the recent disturbance.

Roads: None

PART III - WATERSHED CONDITION

A. Burn Severity … based on low-level flights and on-the-ground field sampling (# of acres)

451	**Low**	133	**Moderate**	127	**High**

B. Estimate of Water-Repellent Soils (acres): 211 (~ 30 % of the entire burned-area)

C. Soil Erosion Hazard Rating (# of acres)

421	**Low**	121	**Moderate**	169	**High**

D. Erosion Potential: 19.3 tons / acre

E. Sediment Potential: 2,100 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period	5 Years
B. Design Chance of Success	65 %
C. Equivalent Design Recurrence Interval	2 Years
D. Design Storm Duration	1 Hour
E. Design Strom Magnitude	0.79 inches
F. Design Flow	41 cfs / mi^2
G. Estimated Reduction in Infiltration	37 %
H. Adjusted Design Flow	103 cfs / mi^2

PART V - SUMMARY OF THE ANALYSIS

A. Describe Critical Values-at-Risk / Resources and Immediate Threats

Threats to Human Life and Property … The town of Fillmore, Utah is located about 5 miles west of the burned-area. There is little, if any, actual concern for human health and property connected with the wildfire.

➔

➔ **The Potential Loss of Long-Term Soil Productivity** … About 35 % of this wildfire has moderate to high severity burns occurring upon moderately steep to steep mountainsides and very steep ridgetop areas. At this time, hydrophobic ground conditions exist within 30 % of the burned-area. If the soil becomes truncated – meaning, its topsoil horizons are washed away from the most severely burned sites, then, there is a concern about the type of plants that would become re-established within this disturbance. Much of the burned-area has a poor rating for conducting broadcast seeding treatments. Anticipated seeding success would be about 4 to 5 years out of 10. The soils in this part of the Pahvant Range were formed from sandstone and quartzite. The soil consists of sandy textured material which is easily detached and transported away from unprotected areas during summer thunderstorm events. If the burned-area is impacted by a 10 –Year storm event, there is a high likelihood for mud and assorted debris to be flushed off its severely burned upper mountainsides and down into the North Fork of Chalk Creek from a sub-basin area drained by Tributary A (see Hydrologists Report and Maps).

➔ **Existing ATV Trail Surfaces** … The BAER Team observed two well-defined ATV trails occurring within the burned-area. One trail is located in the vicinity of Black Cedar Hills Spring; it is authorized for administrative and public use. It is located right along the perimeter of the fire in the NW part of this disturbance. A few segments of this trail surface will need to be re-conditioned, waterbarred and out-sloped in order to prevent a loss-of-water-control from occurring in areas where a severe burning disturbance has affected the edge of the trail surface. Secondly, there is an unauthorized, user-made trail going right through the middle of the burn. This trail is not being maintained by the Forest Service. It will

not be shown as being open to the public for motorized travel on our new Travel Map. The existing trail continues along the contour over into the eastern edge of the burn where it finally plays-out along a rocky ridgetop. Part of the trail is located in a mountainous area affected by a severe burning. This segment of trail will likely be over-topped by rocks, assorted debris and eroding soil material when the surrounding hillsides are subjected to summer thunderstorm events. The trail crosses several drainage ways. None of these crossings have any armoring or a culvert to direct and manage the flow of water down the hillside. Much of the trail surface is covered with cobbles, stones and boulders. Parts of the trail surface will act as a conduit flushing large volumes of water back upon the lower burned-area causing erosive ground conditions. The unmanaged channel crossings observed along the trail will be subject to accelerated flows of water causing the ground to downcut and form into gullies. This area should be signed, closed, and, to a certain extent obliterated in order to restrict motorized travel.

➔ **Potential for the Establishment of Noxious Weeds and Invasive Plant Species** … Several different weeds occur in close proximity to this burn. These unwanted plants are spotted knapweed, Scotch thistle, musk thistle, field bindweed, Dyer's woad and whitetop. In addition, there is a significant amount of cheatgrass already established on the neighboring BLM lands to the west.

B. Emergency Treatment Objectives*:*

Our suggested land treatments include weed monitoring and herbicide applications on specific areas that were targeted as potential sites for noxious weed invasion. The objective is to prevent the establishment and spread of these unwanted plants within the burned-area. The purpose of our broadcast seeding is two-fold. To a certain extent, we're going to combine the seeding with the other weed treatments as another means of limiting the growth of weeds and cheatgrass within the burn. Seeding is intended to prevent a loss of long-term soil productivity from occurring on NFS lands by stabilizing erosive ground conditions on the fire-damaged terrain.

All of our recommended trail treatments are intended to stabilize the existing transportation surface and, to limit erosive conditions from occurring upon the surrounding terrain. In the case of the Black Cedar Hills Spring trail the treatments are designed to minimize resource damage to our capital investment. The planned trail closure and obliteration project is targeted at correcting a loss-of-water-control that would be flowing off the unauthorized trail surface.

Several explanatory signs will be used in an effort to warn forest users of dangers in burned areas and to limit the potential damage that may be casued by forest users accessing NF lands through the burn area. One sign will be located along the western edge of the fire. It will be used for enforcement purposes to explain why the unauthorized ATV trail is being closed for protection of the burn area. The remaining 2 signs will be posted along the NW perimeter of the burn; they will explain the hazards associated with the burn and the need to stay out of the emergency treatment areas.

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C. Probability of Completing Emergency Stabilization Treatments Prior to Storm Damaging Event:

Land	80 %	Channel	N/A	Roads / Trails	85 %	Protection / Safety	90 %

D. Probability of Treatment Success:

Treatment Types:	← Years After Treatment →		
	1	**3**	**5**
Land Treatments	75 %	80 %	85 %
Channel Treatments	-	-	-

Trail Treatments	85 %	75 %	70 %
Protection / Safety Treatments	90 %	85 %	80 %

E. Cost of Taking No-Action (Including Loss) $ 725,000 (fisheries, outdoor recreation, soil resources, transportation surfaces, diversion, utility lines)

F. Cost of the Selected Alternative (Including Loss) $ 145,000

G. Skills Represented on the Initial / Burned-Area Emergency Response Team:

X	Hydrology	X	Soils	X	Geology	X	Range		BLM
	Forestry	X	Wildlife		Fire Mgt.	X	Engineering		NRCS
X	Contracting	X	Ecology	X	Botany		Archaeology	X	Helibase
X	Fisheries		Research		Visuals	X	GIS Support	X	District Staff

Team Leader: Michael D. Smith / Soil Scientist
Email: mdsmith01@fs.fed.us Phone: (435) - 896 -1071 Fax: (435) - 896 - 9347

H. Treatment Narratives:

(Describe the emergency treatments, where and how they will be applied, and what they are intended to do. This information helps to determine qualifying treatments for the appropriate funding authorities. For seeding treatments, include species, application rates and species selection rationale)

(Please see our GIS displays for noxious weed monitoring and recommended BAER Treatments at this time)

❶ Land Treatments – the Fishlake NF / BAER Team and members of the Fillmore Ranger District would monitor about 44 acres of pinyon – juniper, Gambel oak, curlleaf mountain-mahogany and mountain big sagebrush dominated landscapes occurring directly adjacent to the closed / obliterated ATV trail – and, directly adjacent to both the northern and western edges of the burned-area for the establishment of noxious weeds – especially, musk thistle, Scotch thistle and spotted knapweed. In addition, they will monitor various suppression-related ground disturbances, such as the hand line areas, in an effort to limit the establishment and spread of these unwanted plants. In conjunction with the stated monitoring activities, the District will treat about 10 acres of noxious weeds with chemical herbicides in order to limit the growth of these undesired plants.

Another effective treatment associated with minimizing the establishment and spread of weeds and invasive plant species is to conduct broadcast seeding. The seeding treatment currently being planned for these steep mountainsides and ridgetop areas is intended to 1) prevent the establishment of weeds – and, 2) stabilize erosive ground conditions on fire-damaged terrain. The seeding operation will be conducted on 165 acres using a Type III helicopter. Most of the target terrain is in the range of 20 to 60 % slopes. The seed mix was designed for mid-elevation landscapes having low to moderate water retention properties.

Native or Introduced	Species to be Seeded	Seed Mix for (22 – 26 ” MAP)	Estimated Costs / Pound (PLS)
		Pounds / Acre (PLS)	

N	Big bluegrass " Sherman "	0.5	$4.50
N	Sandberg bluegrass VNS	0.5	4.25
N	Indian ricegrass " Rimrock "	2	4.00
N	Bluebunch wheatgrass " Goldar "	1	4.50
N	Slender wheatgrass " Pryor "	5	2.00
N	Snake River wheatgrass " Secar "	1	4.50
N	Thickspike wheatgrass " Bannock "	1	5.50
N	Thickspike wheatgrass " Critana "	1	5.50

Total Pounds (PLS) / Acre	12.0
Total Seeds (PLS) / Ft² 1/	59
Estimated Seed Cost / Acre	$42.38
Estimated Cost Seed Mix / Pound	$3.53

1/ Recommended rates for broadcast seeding mixes are about 50 – 100 seeds per square foot when followed by dragging to cover the seed (see Planting Guide for Utah). The guide also states for aerial seeding, " if it is not possible to cover seed, plant late in the fall and increase the seeding rate ."

Specific ecological attributes valued for some of the recommended species include the following:

Big bluegrass — " often found growing on drier, infertile, open side hills, and waste places…noted for early spring growth…used successfully for reseeding burned-over forest lands. "

Sandberg bluegrass — " important for soil stabilization and forage for wildlife… one of the first grasses to green-up in the spring…excellent in low rainfall native mixes "

(These two bluegrasses should be competitive with any cheatgrass that may be residual in the burned-area.)

Indian ricegrass — " valuable winter forage…one of the most drought tolerant native grasses "

Bluebunch wheatgrass — " long-lived, drought tolerant…one of the most valuable native range grasses "

Slender wheatgrass — " valuable in erosion control because of its rapid development "

Snake River wheatgrass — " adaptable to most areas suitable for bluebunch wheatgrass, but is more vigorous and drought tolerant…originally released as a bluebunch wheatgrass variety "

Thickspike wheatgrass — " adapted to disturbed range sites and dry areas subject to erosion "

❷ Channel Treatments - None

❸ Trail Treatments – Re-condition about a mile of existing ATV trail. Currently, the trail comes up into the burned-area from nearby Black Cedar Hills Spring. The trail surface continues for 0.9 mile along the NW perimeter of this fire. The recent fire has already started to compromise the performance of the trail surface. In some areas there is a distinct loss of water control as the transportation surface is first collecting and subsequently flushing large volumes of water back upon the fringe of the burned-area potentially causing excessive erosion conditions. The trail needs to bladed, waterbarred and outsloped using a backhoe or Trail Cat to accomplish the job.

❸

A second unauthorized ATV trail currently exists right in the middle of the burned-area. Much of this user-made trail occurs along the contour of a steep mountainside recently affected by a high severity burn. This unauthorized segment of motorized trail crosses over several drainages causing streambank erosion. The District has approved non-motorized types of recreation for this area – specifically day hiking and equestrian pursuits … but not ATVs. The recent fire event is going to aggravate the already erosive ground conditions – especially, within the fragile stream channels. We need to sign, close and to the extent possible, obliterate this trail surface in a timely manner.

Interim 1 Request –A backhoe will be used to obliterate the existing prism of the unauthorized trail surface. The obliteration is needed because the increase in runoff expected to occur due to the fire will cause excesesive amounts of energy on the trail. This exra runoff energy may cause rilling and gullying of the soil surface. The traeatment includes the use of a backhoe to scarify, berm and pock the ground surface making foot traffic and equestrian travel difficult - but possible. However, the treatment will prevent motorized vehicles from entering and traversing upon the burned terrain. Waterbars will be constructed in several areas to divert and dissipate the increased flows of water coming off the burned-area and its trail systems. It was determined a total of $ 3,200 would be needed to accomplish this treatment. The current rate for the backhoe and its Operator amounts to about $ 650 / day. We figured a ½ day to mobilize the equipment over to the burned-area; another ½ day to demobilize the equipment away from the site and 4 days to complete the job of closing the trail – meaning, creating waterbars, out-sloping the ground surface, putting a natural flow back into one unstable stream channel in order to prevent further downcutting – and, it includes, posting the explanatory sign to keep the general public out of the treatment area. If necessary, some of the fragile areas located directly adjacent to the trail can be re-seeded to stabilize erosive ground conditions caused by this wildfire; the seed mix would be identical to the mix approved for our broadcast seeding treatment.

❹ Protection and Safety Measures This burn requires several explanatory signs to alert the local residents about the potential hazards associated with the recent disturbance; The first sign needs to be posted at the entrance to the unauthorized ATV trail indicating this area is CLOSED to motorized traffic. In addition, the sign should briefly explain the hazardous conditions existing within the burned-area. Two additional signs should also be posted along the NW perimeter of this wildfire to explain the unsafe ground conditions – and, the need to avoid traveling into the emergency treatment areas.

I. Monitoring Narrative:

(Briefly describe the monitoring needs, what treatments will be monitored, how they will be monitored, and when monitoring will occur. A detailed Monitoring Plan must be submitted as a separate document to the Regional BAER Coordinator)

(Projected Cost in Year # 1 - $ 5,800)

The implementation and effectiveness of our proposed treatments will need to be monitored. The placement of explanatory signs as well as their effectiveness will be monitored with a field visit. This will occur once the signs are in place, late summer of 2006. The road closure sign as well as the obliteration of the ATV trail will be monitored for its effectiveness once the obliteration is complete.

Vegetative monitoring will be done with walking transects through the treatment area in the spring and early summer of 2007. The species present will be noted and compared to the seeded species. Data will be collected as both a species list and as ocular estimates of cover by species. Seeding monitoring data additionally will include noting the seeded species that performed best, seeded species that did not do well, and whether the seeded species competed with cheatgrass and other invasive species. The general appearance of the overall vegetation response in the burned-area will be described, and photographed; this includes the post-fire response of the pre-burn vegetation.

The monitoring for noxious weeds will be done by traversing the terrain identified on our GIS display entitled Noxious Weed Monitoring Areas. If any noxious weeds are identified, appropriate chemical treatments will be

used to reduce spread and eradicate those species from the area. If chemical treatments are used, the success of those treatments will, in turn, be monitored and reported to the BAER Team.

Post storm event monitoring will also take place by analyzing the movement of water off the Mountain, into the channels, across the roads and trails, and into the valley below. Two storms within the first year will be monitored. Data collected by a tipping rain bucket will be used as well in this analysis. The hydrophobic soil conditions will be checked while in the burned-area. The trail re-conditioning and minor drainage treatments should be monitored to check effectiveness as well with a field visit.

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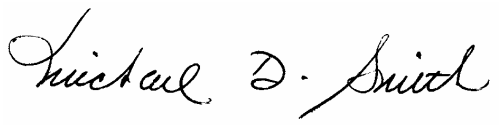
(A detailed Monitoring Plan will be submitted to Jeff Bruggink the R4 / BAER Coordinator with this 2500-8 / Initial BAER Report as a separate document)



Part VI – Emergency Stabilization Treatments and Source of Funds - Initial BAER Report

			NFS Lands				Other Lands				All
		Unit	# of		Other		# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	BAER $	$		units	$	Units	$	$
A. Land Treatments											
Weed Monitoring	acre	4	44	$176	$0			$0		$0	$176
Herbicide Application	acre	80	10	$800	$0			$0		$0	$800
Broadcast Seeding - T	acre	85	165	$14,025	$0			$0		$0	$14,025
Temporary Seed Stora	month	100	2	$200	$0			$0		$0	$200
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Land Treatments				$14,225	$0			$0		$0	$14,225
B. Channel Treatments											
				$0	$0			$0		$0	$0
N/A				$0	$0			$0		$0	$0
				$0	$0			$0		$0	$0
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Channel Treat.				$0	$0			$0		$0	$0
C. Road / Trails											
Re-Condition ATV Trai	mile	1500	0.90	$1,350	$0			$0		$0	$1,350
Obliterate ATV Trail in	mile	2000	1.6	$3,200	$0			$0		$0	$3,200
				$0	$0			$0		$0	$0
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Road & Trails				$4,550	$0			$0		$0	$4,550
D. Protection / Safety											
Explanatory Signs	sign	400	3	$1,200	$0			$0		$0	$1,200
				$0	$0			$0		$0	$0
				$0	$0			$0		$0	$0
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Structures				$1,200	$0			$0		$0	$1,200
E. BAER Evaluation											
BAER Team	job	10825	1		$10,825			$0		$0	$10,825
Helicopter - Bell 206 / I	hour	700	3		$2,100			$0		$0	$2,100
Supplies & Document I	misc	500	1		$500			$0		$0	$500
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Evaluation				$0	$13,425			$0		$0	$13,425
F. Monitoring											
Year 1	year	5800	1	$5,800	$0			$0		$0	$5,800
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Monitoring				$5,800	$0			$0		$0	$5,800
G. Totals				$25,775				**$0**		**$0**	**$39,200**
Previously approved				$22,575							
Total for this request				**$3,200**							

PART VII - APPROVALS

1. /s/ Steve Rodriguez — August 23, 2006
   acting Forest Supervisor (signature) — Date

2. /s/ William P. LeVere for — 8/25/06
   Regional Forester (signature) — Date